

## REMARKS

Claims 1-23 have been canceled without prejudice or disclaimer. Applicants reserve the right to file one or more continuation or divisional applications directed to the canceled subject matter. Claim 10 has been rewritten as new claim 37. The Office stated in the official Office action with a mail date of September 2, 2003, that claim 10 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. New claims 24-37 have been added. New claims 24 corresponds to canceled claims 1 and 4, new claims 25 and 26 corresponds to canceled claims 2 and 3 respectively, new claims 27 and 28 correspond to canceled claims 5 and 6 respectively, new claim 29 corresponds to canceled claims 7 and 10, new claims 30 and 31 correspond to canceled claims 8 and 9 respectively, new claims 32-33 correspond to canceled claims 17 and 18 respectively, new claims 34-36 corresponds to canceled claims 21-23 respectively and new claim 37 corresponds to canceled claim 10. Basis for the recitation "freely moving" in new claims 24-28, 32-33 can be found in the specification in Figures 1, 6, 9, and 17 for example and on page 17, lines 12-20; page 18, lines 13-20; and examples 4 and 6 for example. No new matter has been introduced by this amendment. Entry and consideration are respectfully requested.

The rejection of claims 11-16, 19 and 20 under 25 USC 101 because the claimed invention is directed to nonstatutory subject matter is respectfully traversed. Claims 11-16, 19, and 20 have been canceled by way of the above amendment. No claims of similar scope are currently pending. Withdrawal of the instant rejection is respectfully requested.

The rejection of claims 11-20, as it now pertains to new claims 32 and 33, under 35 USC 102(b) as being anticipated by any of Bitterman et al. (Journal of Comparative Psychology); Marfaing

et al. (J. of Insect Physiology) or Manner (Hammer?) et al. (Journal of Neuroscience) is respectfully traversed. Claims 11-16, 19 and 20 have been canceled and no pending claims are of similar scope. With respect to claims 17 and 18, the Office states that all of the above references disclose conditioning honeybees to be responsive to a chemical odor and that the conditioning process includes exposing the organism to both a target chemical (odor) and a biological resource (food) upon displaying a behavioral response (proboscis extension response).

Applicants respectfully submit that the references fail to anticipate new claims 32 and 33. All three references disclose restraining the honey bees in order to train them. In the above claimed invention the organisms are freely moving. Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration. It is not enough, however, that the reference disclose all the claimed elements in isolation. Withdrawal of the instant rejection is respectfully requested.

The rejection of claim 21, as it now pertains to new claim 34, under 35 USC 102(b) as being anticipated by Wilson et al. (US 5,134,892) is respectfully traversed. The Office states that the Wilson et al. reference discloses a chemical detection system that includes a device (634, 635, 633) for introducing a sample of air into a detection chamber (617). The device includes sensors (610) for detecting a response by organisms within the chamber. The Office further states that the device includes a data analysis system (639, 624, 623, 620, 621) operatively connected to the sensor. The Office further states that with respect to the recited power source, the exhaust fan (633) of the air introduction means is considered to inherently include a power source.

Applicants respectfully submit that claim 34 is not

anticipated by Wilson et al. Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration. It is not enough, however, that the reference disclose all the claimed elements in isolation. Wilson et al fails to teach an invention that comprises a means for introducing a sample of air from an area suspected of containing a chemical into at least one detector chamber, at least one detector chamber containing an organism trained to detect a chemical operatively connected to said means for introducing a sample of air, a sensor means for detecting a response by an organism trained to detect said chemical in a sample of air wherein said organism is in said detector chamber, and a data analysis system. No where does the Wilson et al. reference teach using an organism trained to detect a chemical. They are testing insects to determine the attractant or repellent activity of a chemical to an untrained insect.

Withdrawal of the instant rejection is respectfully requested.

The rejection of claim 22, as it now pertains to new claim 35, as being unpatentable over Wilson et al. (US 5,134,892) in view of Quattrone et al. (US 3,367,308) is respectfully traversed. The Office states that the Wilson reference is applied as discussed in the previous rejection. It then states that the reference does not teach that the air introduction device includes a flow control valve and a meter. The Office then states that the Quattrone et al. reference discloses a system for exposing an organism to a desired air stream that includes the use of valve (94) and flow meter (95). The Office concludes that in view of this teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the system of the primary reference of Wilson et al. with a valve and meter for the known and expected result of determining and/or controlling the flow of

sample air provided to the detection housing.

Applicants respectfully submit that the combination of Wilson et al. in view of Quattrone et al. fails to render the instantly claimed invention *prima facie* obvious. The combination of Wilson et al taken with Quattrone et al fails to teach a chemical detection system of the instantly claimed invention since both references teach exposing an untrained organism to a chemical. The combination of references only teaches how to test an organism to determine *if* it will react when exposed to a particular chemical or mixture of chemicals; not to record a known response by an organism trained to respond in a particular way to a particular chemical in an air sample if that chemical is present in the air sample.

The primary and secondary references are non-analogous art. Two criteria have evolved for determining whether prior art is analogous: (1) whether the art is from the same field of endeavor, regardless of the problem addressed, and (2) if the reference is not within the field of the inventors endeavor, whether the reference is reasonably pertinent to the particular problem. See *In re Clay*, 23 USPQ 2d 1058 (CAFC, 1992). Wilson and Quattrone, as stated above, relate to learning how an organism will respond when exposed to a particular chemical or mixture of chemicals when the organisms are placed in a tester or exposure system. The references are not reasonably pertinent to the problem of detecting the presence of chemicals in samples using an organism trained to detect the chemical of interest using a system designed to contain the trained organism, present an air sample and detect and analyze the response of the trained organism to the air sample that may or may not contain the chemical of interest. One of ordinary skill in the art at the time the claimed invention was made would not look to either reference for teachings for a system for chemical detection.

The combination of references fails to teach the instantly claimed chemical detection system. The primary reference fails to teach a system containing an organism trained to detect a chemical and the secondary reference fails to cure this deficiency. Therefore, the combination of references fails to render the instantly claimed invention *prima facie* obvious. The combination is merely an invitation to experimentation without any reasonable expectation for success. Withdrawal of the instant rejection is respectfully requested.

The rejection of claim 23, as it now pertains to new claim 36, as being unpatentable over Wilson et al. (US 5,134,892) in view of Sakano (US 4,969,417) is respectfully traversed. The Office states that Wilson is applied as in the previous 102(b) rejection and states that the reference fails to teach that the sensor is an optical sensor. The Office then states that the Sakano reference discloses that it is known in the art that a number of different sensor systems can be employed to detect the movement of an organism in a detection chamber with reference to column 3, lines 5-21 stating that the reference discloses the use of optical sensors. The Office concludes that it would have been obvious to one of ordinary skill in the art to employ an optical sensor system in the system of the primary reference of Wilson et al. for the known and expected result of providing an alternative means recognized in the art to achieve the same result, detect the movement of a contained organism.

Applicants respectfully submit that the combination of Wilson et al. in view of Sakano fails to render the instantly claimed invention *prima facie* obvious. The combination of Wilson et al taken with Sakano fails to teach a chemical detection system of the instantly claimed invention since both references teach exposing an untrained organism to a chemical. The combination of references only teaches how to test an

organism to determine if it will react, with the type of reaction unknown, when exposed to a particular chemical or mixture of chemicals; not to record a known response by an organism trained to respond in a known way when in the presence of a particular chemical in an air sample in order to determine if that chemical is present.

The primary and secondary references are non-analogous art. Two criteria have evolved for determining whether prior art is analogous: (1) whether the art is from the same field of endeavor, regardless of the problem addressed, and (2) if the reference is not within the field of the inventors endeavor, whether the reference is reasonably pertinent to the particular problem. See *In re Clay*, 23 USPQ 2d 1058 (CAFC, 1992). Wilson and Sakano, as stated above, relate to learning how an organism will respond when exposed to a particular chemical or mixture of chemicals when the organisms are placed in a tester or cage system. The references are not reasonably pertinent to the problem of detecting the presence of chemicals in samples using an organism trained to detect the chemical of interest using a system designed to contain the trained organism, present an air sample and detect and analyze the response of the trained organism to the air sample that may or may not contain the chemical of interest. One of ordinary skill in the art at the time the claimed invention was made would not look to either reference for teachings for a system for chemical detection.

The combination of references fails to teach the instantly claimed chemical detection system. The primary reference fails to teach a system containing a organism trained to detect a chemical and the secondary reference fails to cure this deficiency. Therefore, the combination of references fails to render the instantly claimed invention *prima facie* obvious. The combination is merely an invitation to experimentation without

any reasonable expectation for success. Withdrawal of the instant rejection is respectfully requested.

The rejection of claims 1-9, as it now pertains to new claims 24-28 and 30-31, as being unpatentable over any of Bitterman et al. (Journal of Comparative Psychology); Marfaing et al. (J. of Insect Physiology); or Manner et al (Hammer?) (Journal of Neuroscience) in view of Matsui (JP 61-083964) is respectfully traversed. The Office states that the three primary references are applied as before and that the references are silent as to the system employed to expose the organisms to the chemical and recording the response. It then states that the Matsui reference discloses a system that is known in the art for holding an organism that is responsive to chemical odors and is capable of detecting responses of the organisms to the chemicals provided in the holding chambers referring especially to the english abstract. It then states that Matsui employs an electronic sensor (5a), and data analysis system (7,8), and employs multiple chambers (5b). The Office states that with respect to claim 7, line (6) meets the claim limitation of a divider with an opening (6a) that is located between an organism compartment (5b) and sample compartment (2) and that the response of the organism can be visually recorded in addition to the use of electronic sensors.

Applicants respectfully submit that the combination of any of the three primary references in view of Matsui fails to render the instantly claimed invention *prima facie* obvious. All three primary references disclose restraining honey bees in order to train them. In the above claimed invention the organisms are freely moving. Furthermore, as stated by the Office, the three primary references fail to teach a system utilizing a trained organism. Matsui discloses a system for determining the action of a substance on an untrained animal. The disclosed system

utilized column chromatography to separate a sample into components before introducing it to the animal and then the animal is observed to determine what type of action the sample component will have on it. One of ordinary skill in the art at the time the claimed invention was made would not be motivated to combine Matsui with any of the three primary references to practice the instantly claimed invention since Matsui is non-analogous art. Two criteria have evolved for determining whether prior art is analogous: (1) whether the art is from the same field of endeavor, regardless of the problem addressed, and (2) if the reference is not within the field of the inventors endeavor, whether the reference is reasonably pertinent to the particular problem. See *In re Clay*, 23 USPQ 2d 1058 (CAFC, 1992). Matsui, as stated above, relate to learning how an organism will respond when exposed to a particular component of a chemical when the organisms are placed in a tester or exposure system. The reference is not reasonably pertinent to the problem of detecting the presence of chemicals in samples using an organism trained to detect the chemical of interest using a system designed to contain the trained organism, present an air sample and detect and analyze the response of the trained organism to the air sample that may or may not contain the chemical of interest. One of ordinary skill in the art at the time the claimed invention was made would not look to Matsui for teachings of a system and method for chemical detection in order to modify any of the three primary references.

The combination of references fails to teach the instantly claimed chemical detection system and method for detection of the presence of at least one chemical in a sample. The primary reference fails to teach a system containing a organism trained to detect a chemical and the secondary reference fails to cure this deficiency. Therefore, the combination of references fails

to render the instantly claimed invention *prima facie* obvious. The combination is merely an invitation to experimentation without any reasonable expectation for success.

There is simply no motivation save for the teachings of the inventor's application, to produce the claimed invention. The Office is using the improper standard of **IMPROPER** hindsight analysis. It is impermissible to use the claimed invention as an instruction manual or template to piece together the teachings of the prior art so that the claimed invention is rendered obvious. One cannot use improper hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. The three primary references each taken in view of Matsui fail to render the instantly claimed invention *prima facie* obvious.

The Office is also using the improper standard of obvious to try. It is respectfully submitted that the essence of obviousness does not arise by merely picking and choosing from the prior art to produce the claimed invention. "In order to establish *prima facie* obviousness it is necessary for the examiner to present evidence preferably in the form of some teaching, suggestion, incentive, or general available knowledge, that one of ordinary skill in the art would have been led to combine relevant teachings of the applied references in the proposed manner to arrive at the claimed invention. *Ex parte Levengood*, 28 USPQ2d 1300, 1301 (Bd. Pat. & Int'l, 1993).

Starting from this correct standard of obviousness, the error of the Office is clear—it is improper because the Office has failed to identify any teachings in the prior art motivating the skilled artisan to produce a chemical detection system and a method for detecting a chemical in a sample. No references or combination of references have been provided which would teach, suggest, or motivate one of ordinary skill in the art to modify any of the

three primary references to use a freely moving trained organism in the instantly claimed system in order to detect a chemical in a sample of air. Matsui only teaches adding a known chemical that has been separated into components to see how an untrained animal will react to the known chemical. Matsui fails to teach introducing a sample of air with an undetermined chemical makeup. Therefore the combination of any of the three primary references in view of Matsui fail to teach one of ordinary skill in the art how to make and use the instantly claimed invention with a reasonable expectation of success. There is simply no motivation save for the teachings of the inventor's application, to produce the claimed invention. The rejection is improper.

Withdrawal of the instant rejection is respectfully requested.

In view of the above amendments and remarks, it is believed that all of the claims are in condition for allowance. Accordingly, it is respectfully requested that the instant application be allowed to issue. If any issues remain to be resolved, the Examiner is invited to telephone the undersigned at the number below.

In the event this paper is deemed not timely filed, the undersigned hereby petitions for an appropriate extension of time. The fee for such extension may be charged to Deposit Account 50-2134, along with any additional fees which may be required with respect to this paper.

Respectfully Submitted,

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DATE

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CERTIFICATE OF FILING VIA FACSIMILE

The undersigned hereby certifies that the attached **Amendment with Petition for extension of time (One Month)** was this day January 2, 2004 filed in the United States Patent and Trademark Office via facsimile to facsimile number 703-872-9306 Pages: 18

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